1. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 - 81x + 81 = 0$$

A. $x_1 \in [0.67, 0.8]$ and $x_2 \in [5.39, 5.97]$

B. $x_1 \in [35.85, 36.16]$ and $x_2 \in [43.26, 46.08]$

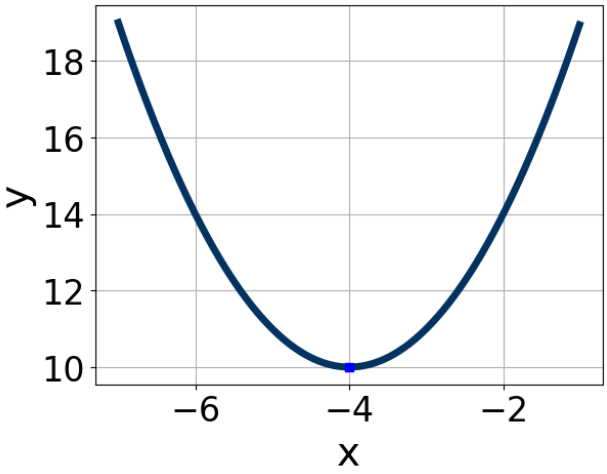
C. $x_1 \in [1.78, 1.98]$ and $x_2 \in [2, 3.05]$

D. $x_1 \in [0.55, 0.68]$ and $x_2 \in [5.91, 7.68]$

E. $x_1 \in [0.29, 0.56]$ and $x_2 \in [8.36, 9.44]$

---

2. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-0.1, 1.3]$, $b \in [-9, -6]$, and $c \in [3, 8]$

B. $a \in [-0.1, 1.3]$, $b \in [2, 11]$, and $c \in [25, 28]$

C. $a \in [-0.1, 1.3]$, $b \in [-9, -6]$, and $c \in [25, 28]$

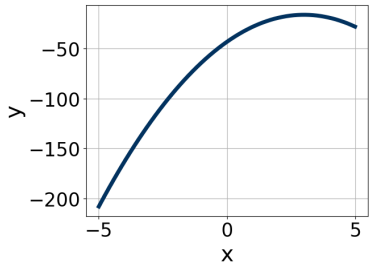
D. $a \in [-1.2, 0.3]$, $b \in [-9, -6]$, and $c \in [-7, -3]$

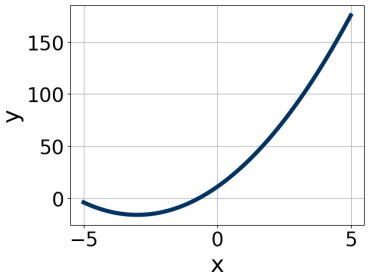
E. $a \in [-1.2, 0.3]$, $b \in [2, 11]$, and $c \in [-7, -3]$

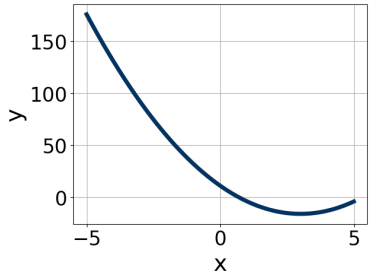
---

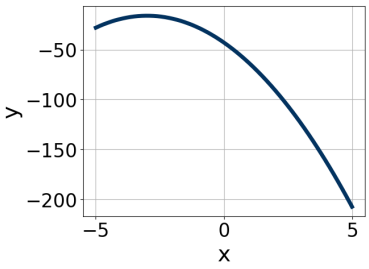
3. Graph the equation below.

$$f(x) = (x-3)^2 - 16$$

A. 

C. 

B. 

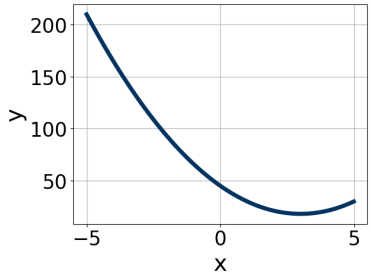
D. 

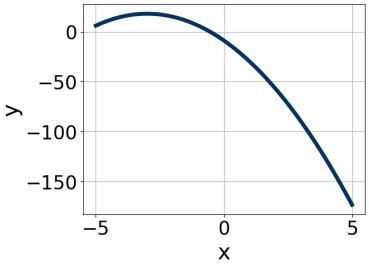
E. None of the above.

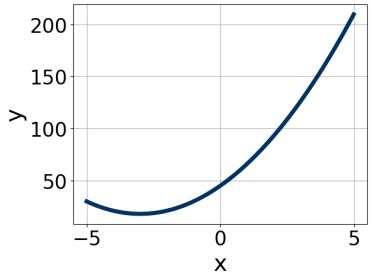
---

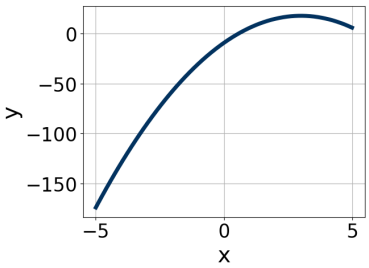
4. Graph the equation below.

$$f(x) = (x+3)^2 + 18$$

A. 

C. 

B. 

D. 

E. None of the above.

---

5. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 + 32x + 16 = 0$$

A. $x_1 \in [-1.45, -0.81]$ and $x_2 \in [-0.89, -0.72]$

B. $x_1 \in [-20.22, -19.79]$ and $x_2 \in [-12.21, -11.95]$

C. $x_1 \in [-4.39, -3.78]$ and $x_2 \in [-0.39, -0.18]$

D. $x_1 \in [-2.77, -2.25]$ and $x_2 \in [-0.46, -0.34]$

E. $x_1 \in [-2.04, -1.51]$ and $x_2 \in [-0.67, -0.49]$

---

6. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$16x^2 + 11x - 8 = 0$$

A. $x_1 \in [-1.2, -0.7]$ and $x_2 \in [-0.92, 0.61]$

B. $x_1 \in [-26.1, -24.8]$ and $x_2 \in [23.7, 25.07]$

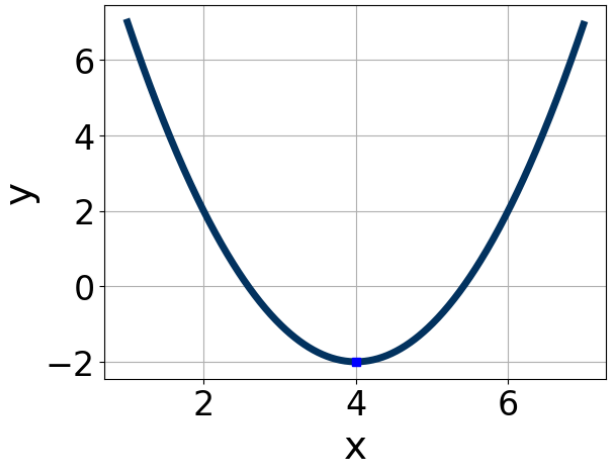
C. $x_1 \in [-18.2, -17.6]$ and $x_2 \in [7.04, 7.33]$

D. $x_1 \in [-0.9, 1.3]$ and $x_2 \in [0.79, 1.41]$

E. There are no Real solutions.

---

7. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-0.9, 1.7]$, $b \in [-8, -5]$, and $c \in [13, 15]$

B. $a \in [-0.9, 1.7]$, $b \in [6, 10]$, and $c \in [13, 15]$

C. $a \in [-2.4, 0.4]$, $b \in [6, 10]$, and $c \in [-18, -16]$

D. $a \in [-2.4, 0.4]$, $b \in [-8, -5]$, and $c \in [-18, -16]$

E. $a \in [-0.9, 1.7]$, $b \in [6, 10]$, and $c \in [17, 20]$

---

8. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$54x^2 + 33x - 10$$

A. $a \in [7.3, 9.9]$, $b \in [-5, -1]$, $c \in [5.9, 7.4]$, and $d \in [5, 7]$

B. $a \in [17.3, 18.2]$, $b \in [-5, -1]$, $c \in [1.9, 5.9]$, and $d \in [5, 7]$

C. $a \in [2.7, 4.3]$, $b \in [-5, -1]$, $c \in [16.7, 18.3]$, and $d \in [5, 7]$

D. $a \in [0.8, 1.1]$, $b \in [-19, -7]$, $c \in [-0.2, 1.9]$, and $d \in [41, 47]$

E. None of the above.

---

9. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$16x^2 + 32x + 15$$

A. $a \in [1.33, 2.64]$, $b \in [1, 6]$, $c \in [7.58, 8.67]$, and $d \in [0, 7]$

B. $a \in [3.49, 4.26]$, $b \in [1, 6]$, $c \in [2.79, 4.2]$, and $d \in [0, 7]$

C. $a \in [0.58, 1.65]$, $b \in [11, 17]$, $c \in [0.83, 1.1]$, and $d \in [19, 28]$

D. $a \in [7.94, 8.37]$, $b \in [1, 6]$, $c \in [1.14, 2.49]$, and $d \in [0, 7]$

E. None of the above.

---

10. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-18x^2 - 12x + 7 = 0$$

A. $x_1 \in [-1.49, -0.59]$ and $x_2 \in [-0.22, 0.88]$

B. $x_1 \in [-26.38, -25.01]$ and $x_2 \in [25.08, 26.1]$

C. $x_1 \in [-0.57, 0.29]$ and $x_2 \in [0.7, 2.14]$

D. $x_1 \in [-6.86, -6.62]$ and $x_2 \in [17.57, 18.78]$

E. There are no Real solutions.

---

11. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 + 75x + 54 = 0$$

A. $x_1 \in [-1.86, -1.47]$ and $x_2 \in [-1.31, -1.15]$

B. $x_1 \in [-46.12, -44.27]$ and $x_2 \in [-30.08, -29.85]$

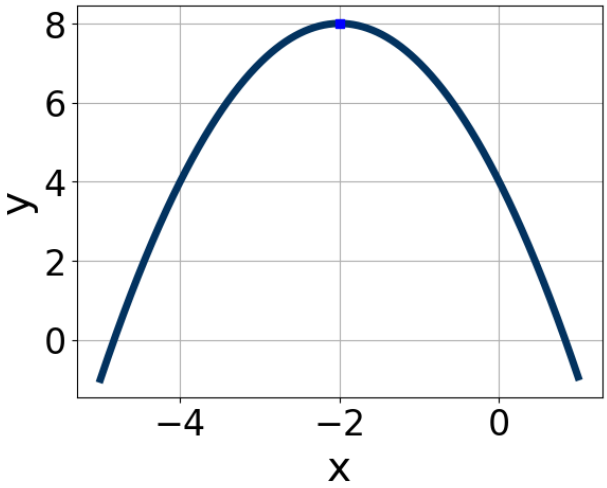
C. $x_1 \in [-2.51, -2.32]$ and $x_2 \in [-1.13, -0.83]$

D. $x_1 \in [-5.87, -4.97]$ and $x_2 \in [-0.5, -0.33]$

E. $x_1 \in [-10.18, -7.05]$ and $x_2 \in [-0.31, -0.04]$

---

12. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2, 0]$, $b \in [3, 8]$, and $c \in [4, 5]$

B. $a \in [-2, 0]$, $b \in [3, 8]$, and $c \in [-12, -10]$

C. $a \in [-2, 0]$, $b \in [-4, -1]$, and $c \in [4, 5]$

D. $a \in [0, 2]$, $b \in [-4, -1]$, and $c \in [9, 14]$

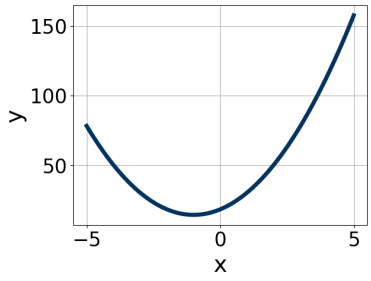
E. $a \in [0, 2]$, $b \in [3, 8]$, and $c \in [9, 14]$

---

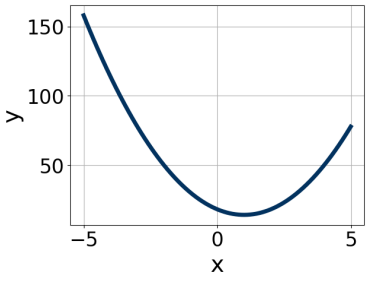
13. Graph the equation below.

$$f(x) = -(x+1)^2 + 14$$

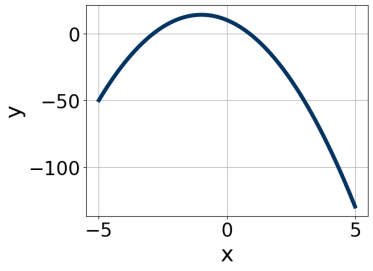
A.



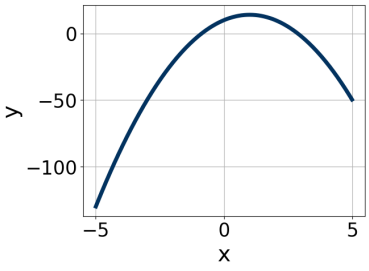
C.



B.



D.



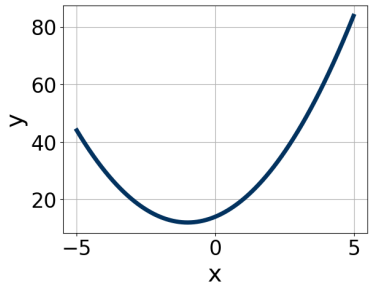
E. None of the above.

---

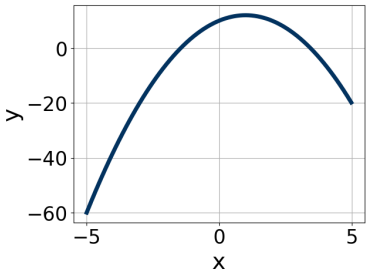
14. Graph the equation below.

$$f(x) = -(x+1)^2 + 12$$

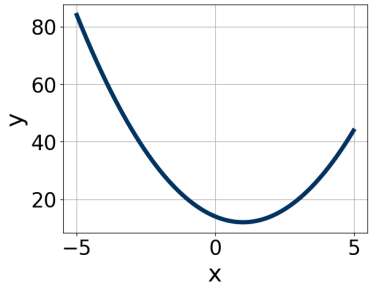
A.



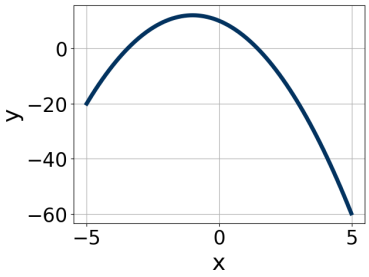
C.



B.



D.



E. None of the above.

---

15. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 + 50x + 24 = 0$$

A. $x_1 \in [-2.76, -1.62]$ and $x_2 \in [-0.44, -0.18]$

B. $x_1 \in [-30.33, -29.48]$ and $x_2 \in [-20.15, -19.54]$

C. $x_1 \in [-1.53, -0.44]$ and $x_2 \in [-1.02, -0.8]$

D. $x_1 \in [-6.4, -5.95]$ and $x_2 \in [-0.27, 0.26]$

E. $x_1 \in [-2.06, -1.47]$ and $x_2 \in [-0.79, -0.45]$

---

16. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-19x^2 - 14x + 9 = 0$$

A. $x_1 \in [-1.79, -0.99]$ and $x_2 \in [-0.31, 0.65]$

B. $x_1 \in [-30.36, -29.59]$ and $x_2 \in [29.26, 30.14]$

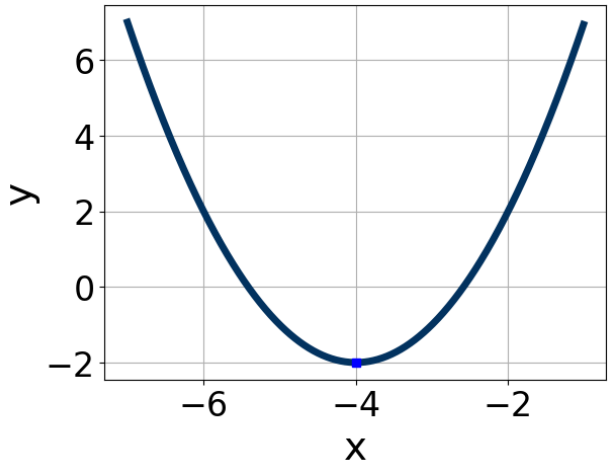
C. $x_1 \in [-8.31, -6.86]$ and $x_2 \in [21.46, 22.28]$

D. $x_1 \in [-1.06, 0.8]$ and $x_2 \in [0.92, 1.45]$

E. There are no Real solutions.

---

17. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2.5, 0.6]$, $b \in [-9, -7]$, and $c \in [-24, -15]$

B. $a \in [-2.5, 0.6]$, $b \in [5, 12]$, and $c \in [-24, -15]$

C. $a \in [0.9, 1.5]$, $b \in [-9, -7]$, and $c \in [13, 16]$

D. $a \in [0.9, 1.5]$, $b \in [-9, -7]$, and $c \in [16, 22]$

E. $a \in [0.9, 1.5]$, $b \in [5, 12]$, and $c \in [13, 16]$

---

18. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax+b)(cx+d); b \leq d$.

$$24x^2 - 10x - 25$$

A. $a \in [1.04, 2.41]$, $b \in [-10, 0]$, $c \in [10.5, 16.1]$, and $d \in [1, 9]$

B. $a \in [2.66, 5.06]$, $b \in [-10, 0]$, $c \in [5.6, 7.2]$, and $d \in [1, 9]$

C. $a \in [0.71, 1.26]$, $b \in [-32, -28]$, $c \in [-0.9, 2.2]$, and $d \in [20, 28]$

D. $a \in [6.55, 8.23]$, $b \in [-10, 0]$, $c \in [1.4, 4.5]$, and $d \in [1, 9]$

E. None of the above.

---

19. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax+b)(cx+d); b \leq d$.

$$36x^2 - 60x + 25$$

A. $a \in [-2.7, 2.9]$, $b \in [-31, -21]$, $c \in [0.57, 1.73]$, and $d \in [-34, -27]$

B. $a \in [2.2, 5]$, $b \in [-12, -3]$, $c \in [11.82, 13.04]$, and $d \in [-5, -4]$

C. $a \in [5.7, 6.1]$, $b \in [-12, -3]$, $c \in [5.25, 6.79]$, and $d \in [-5, -4]$

D. $a \in [16.7, 20.6]$, $b \in [-12, -3]$, $c \in [1.01, 3.29]$, and $d \in [-5, -4]$

E. None of the above.

---

20. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$12x^2 - 14x - 3 = 0$$

A. $x_1 \in [-18.81, -16.92]$ and $x_2 \in [17.6, 20.1]$

B. $x_1 \in [-1.89, -0.28]$ and $x_2 \in [-0.9, 0.6]$

C. $x_1 \in [-1.19, 0.7]$ and $x_2 \in [1, 2.7]$

D. $x_1 \in [-2.47, -1.62]$ and $x_2 \in [14.5, 16.9]$

E. There are no Real solutions.

---

21. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 - 60x + 36 = 0$$

A. $x_1 \in [0.54, 0.61]$ and $x_2 \in [1.77, 2.78]$

B. $x_1 \in [0.17, 0.35]$ and $x_2 \in [4.56, 6.52]$

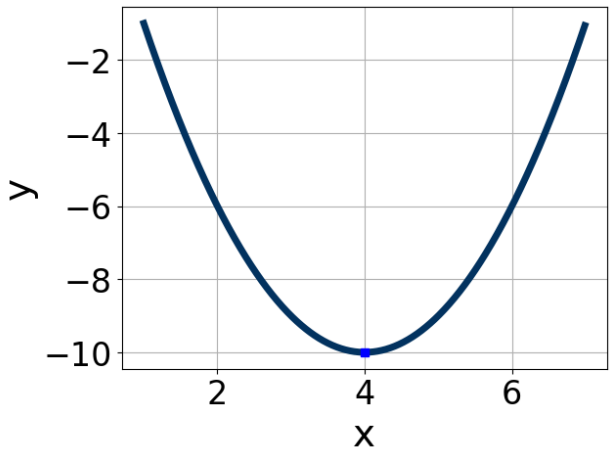
C. $x_1 \in [29.74, 30.37]$ and $x_2 \in [29.71, 30.04]$

D. $x_1 \in [0.76, 1.75]$ and $x_2 \in [1.01, 1.77]$

E. $x_1 \in [0.37, 0.55]$ and $x_2 \in [3.25, 4.59]$

---

22. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-1.8, -0.5]$, $b \in [-10, -5]$, and $c \in [-26, -23]$

B. $a \in [0.7, 1.1]$, $b \in [5, 11]$, and $c \in [6, 9]$

C. $a \in [-1.8, -0.5]$, $b \in [5, 11]$, and $c \in [-26, -23]$

D. $a \in [0.7, 1.1]$, $b \in [-10, -5]$, and $c \in [6, 9]$

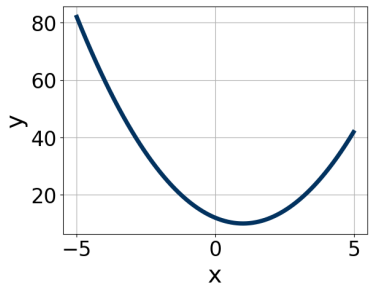
E. $a \in [0.7, 1.1]$, $b \in [5, 11]$, and $c \in [25, 27]$

---

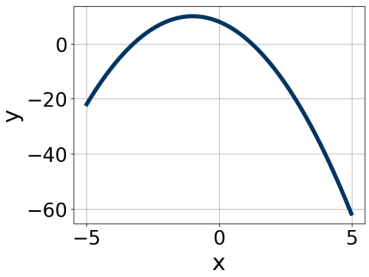
23. Graph the equation below.

$$f(x) = -(x+1)^2 + 10$$

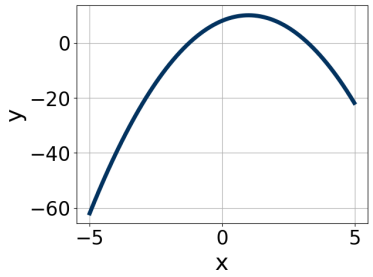
A.



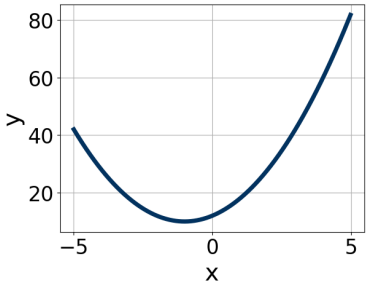
C.



B.



D.



E. None of the above.

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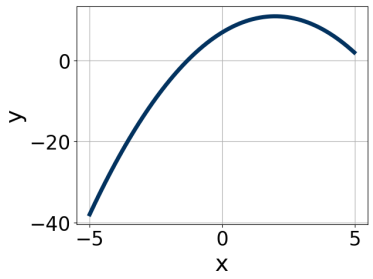
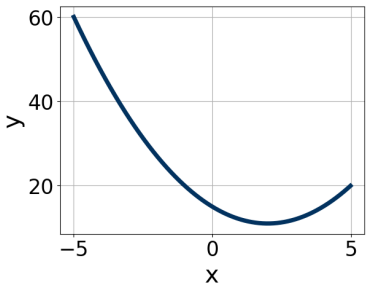
24. Graph the equation below.

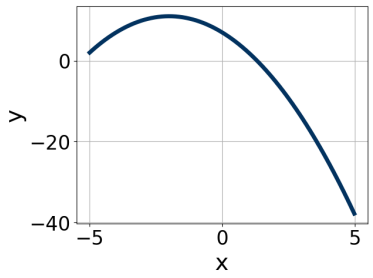
$$f(x) = -(x+2)^2 + 11$$

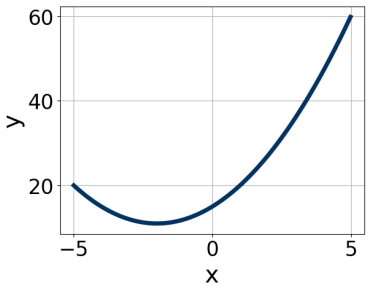
A.



B.



C. 

D. 

E. None of the above.

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25. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 - 60x + 36 = 0$$

A. $x_1 \in [0.07, 0.26]$ and $x_2 \in [5.1, 7.2]$

B. $x_1 \in [0.33, 0.56]$ and $x_2 \in [2.8, 4]$

C. $x_1 \in [0.93, 1.44]$ and $x_2 \in [0.9, 2]$

D. $x_1 \in [0.53, 0.83]$ and $x_2 \in [2.1, 2.8]$

E. $x_1 \in [29.93, 30.26]$ and $x_2 \in [29.6, 30.2]$

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26. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-10x^2 - 7x + 2 = 0$$

A. $x_1 \in [-2.59, -2.04]$ and $x_2 \in [9.07, 10.05]$

B. $x_1 \in [-13.12, -11.38]$ and $x_2 \in [10.67, 11.15]$

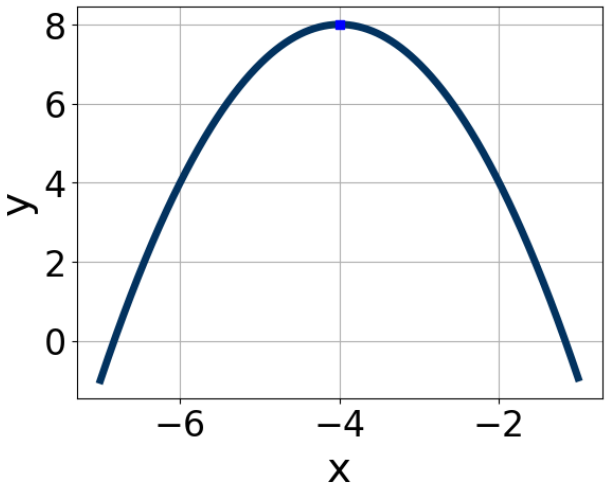
C. $x_1 \in [-0.75, 0.18]$ and $x_2 \in [0.63, 1.43]$

D. $x_1 \in [-1.05, -0.78]$ and $x_2 \in [-0.47, 0.34]$

E. There are no Real solutions.

---

27. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2, 0]$, $b \in [5, 12]$, and $c \in [-9, -7]$

B. $a \in [-2, 0]$, $b \in [-8, -7]$, and $c \in [-9, -7]$

C. $a \in [-2, 0]$, $b \in [5, 12]$, and $c \in [-24, -18]$

D. $a \in [1, 2]$, $b \in [-8, -7]$, and $c \in [21, 28]$

E. $a \in [1, 2]$, $b \in [5, 12]$, and $c \in [21, 28]$

---

28. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 + 37x - 10$$

A. $a \in [2, 3.3]$, $b \in [-4, 0]$, $c \in [11.51, 12.51]$, and $d \in [5, 11]$

B. $a \in [14.6, 18.7]$, $b \in [-4, 0]$, $c \in [1.12, 2.35]$, and $d \in [5, 11]$

C. $a \in [6.4, 9.6]$, $b \in [-4, 0]$, $c \in [3.3, 4.64]$, and $d \in [5, 11]$

D. $a \in [-0.7, 2.2]$, $b \in [-8, -4]$, $c \in [0.62, 1.09]$, and $d \in [40, 50]$

E. None of the above.

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29. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$54x^2 - 57x + 10$$

A. $a \in [16, 20]$, $b \in [-8, -4]$, $c \in [1.1, 3.8]$, and $d \in [-8, -1]$

B. $a \in [2, 4]$, $b \in [-8, -4]$, $c \in [15.3, 18.3]$, and $d \in [-8, -1]$

C. $a \in [-1, 2]$, $b \in [-47, -41]$, $c \in [-1.5, 1.3]$, and $d \in [-12, -9]$

D. $a \in [4, 8]$, $b \in [-8, -4]$, $c \in [6.7, 12.2]$, and $d \in [-8, -1]$

E. None of the above.

---

30. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$17x^2 + 9x - 3 = 0$$

A. $x_1 \in [-17.47, -16.76]$ and $x_2 \in [16.34, 17.07]$

B. $x_1 \in [-0.3, 0.67]$ and $x_2 \in [0.59, 1.42]$

C. $x_1 \in [-13.31, -12.64]$ and $x_2 \in [3.72, 4.19]$

D. $x_1 \in [-0.82, -0.57]$ and $x_2 \in [-0.77, 0.32]$

E. There are no Real solutions.
